REMARKS

Claims 1-52 are pending. Claims 19-20, 33-34, and 39-46 are withdrawn as being directed to non-elected subject matter. The claims have been amended without disclaimer or prejudice and find support *inter alia* in the original claims. Amended claims 1, 3, 4, 6, 7, and 25-29 further find support in the specification at page 9 lines 24-30. Amended claims 12 and 14 further find support in the specification at page 16 lines 1-4 and 30-35. Claim 21 has been amended to correct dependency. Claim 32 has been amended without prejudice or disclaimer to delete non-elected subject matter. Claim 48 has been amended to correct an obvious typographical error as mentioned by the Examiner. No new matter has been added.

Claim Objections

Applicants thank the Examiner for the telephone interview of August 24, 2006. The claim objections relating to non-elected material was discussed. The Examine agreed to rejoinder of the percent identity components of the claims since this had already been searched and examined. Additionally, the Examiner agreed to rejoinder of the different plant species. The restriction relating to microorganisms was maintained and the claims have been withdrawn and amended accordingly.

In light of the interview and the above amendments, the claim objections are believed to be rendered moot. Reconsideration and withdrawal of the objection is respectfully requested.

Rejections under 35 U.S.C. § 112, first paragraph

Written Description Rejection

Claims 1-7, 9-12, 14 and 16-38 are rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description requirement based on the percent identity as set forth in the claims. Applicants respectfully disagree. However to expedite prosecution, the claims have been amended without disclaimer or prejudice to recite an identity of at least 95% at the amino acid level with the sequence SEQ ID NO: 2, 16, or 18.

In Example 14 of the "Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, 1, Written Description Requirements" 66 Fed. Reg. 1099, 1106 (Jan. 5, 2001), a claim reciting a protein having a specific sequence and variants with at least 95% identity to said sequence with a recited function was found adequately described. Similarly, in light of the amendments, Applicants submit that the claims are adequately described. Furthermore, the Examiner has acknowledged that nucleic acids encoding SEQ ID NO: 2, 16, or 18 are sufficiently described.

In light of the amendments, reconsideration and withdrawal of this rejection is respectfully requested.

Enablement Rejection

The Examiner rejects claims 1-7, 9-12, 14 and 16-38 for lack of enablement based on the percent identity as set forth in the claims. Applicants respectfully disagree. However to expedite prosecution, the claims have been amended without disclaimer or prejudice to recite an identity of at least 95% at the amino acid level with the sequence SEQ ID NO: 2, 16, or 18, thereby reciting a scope of subject matter which a skilled artisan could clearly make and use.

In light of the amendments, reconsideration and withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 1-18, 21-32, 35-38 and 47-52 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent 6,232,530 in view of Shewmaker et al. (hereinafter "Shewmaker") and in view of Applicants' specification. Applicants respectfully disagree and traverse the rejection.

The Examiner characterizes U.S. Patent 6,232,530 as teaching marigold transformed with SEQ ID NO: 18 (a β-cyclase) and a β-hydroxylase (crtZ). Applicants respectfully disagree. There is no disclosure of a β-ketolase (SEQ ID NO: 2 or 95% or more variants) as required in the present claims. Applicants also note that the reference does not disclose SEQ ID NO: 18, but

rather a different cyclase. Furthermore, sequence report 3 referred to by the Examiner does not refer to U.S. Patent 6,232,530.

The Examiner alleges that Shewmaker teaches increasing or altering carotenoid composition by expression of lycopene β-cyclase and crtW (ketolase) and crtZ (hydroxylase). Applicants respectfully disagree. Shewmaker discloses transformation with an early carotenoid gene for increasing the biosynthetic activity of the carotenoid pathway (page 10, lines 15-19). This early carotenoid gene is referred to as the primary gene and is phytoene synthase (crtB) (page 10, lines 15-19). Shewmaker also discloses use of at least one secondary gene in addition to the primary gene (page 12, lines 5-12), including keto-introducing enzymes (crtW). Shewmaker's disclosure is directed to increasing the activity of the carotenoid pathway by expression of phytoene synthase as the primary gene (see page 10 lines 15-21).

By contrast, the present claims specify that the modified ketolase activity "is caused by" the ketolase having SEQ ID NO: 2 or the specified derivatives. Accordingly, the subject matter as claimed would not have been obvious from the references, alone or in combination.

Conclusion

For at least the above reasons, Applicants respectfully request withdrawal of the rejections and allowance of the claims.

Accompanying this response is a petition for a two-month extension of time to and including January 10, 2007 to respond to the Office Action mailed August 10, 2006 with the required fee authorization.

No further fee is believed due. However, if an additional fee is due, the Director is authorized to charge our Deposit Account No. 03-2775, under Order No. 13173-00006-US from which the undersigned is authorized to draw.

Respectfully submitted,

By 

Roberte M. D. Makowski
Registration No.: 55,421
CONNOLLY BOVE LODGE & HUTZ LLP
Correspondence Customer Number: 23416
1007 North Orange Street
P.O. Box 2207
Wilmington, Delaware 19899
(302) 658-9141
(302) 658-5614 (Fax)
Attorney for Applicants

482407